

--Surface configuration 420 can further comprise a third plurality of surface projections 470 having at least a left rearward side facet 472 and a right rearward side facet 474 directed at least in part toward trailing end 404 and sides of implant 100, respectively, and at least one forward facet 476 directed at least in part toward leading end 402. In this embodiment, forward facet 476 is at an angle that is less than 90 degrees to at least one of upper and lower surfaces 406, 408 of implant 100. Forward facet 476 may also be approximately perpendicular to at least one of upper and lower surfaces 406, 408 of implant 100. Left and right rearward side facets 472, 474 have at least a first portion in a plane at an angle to the longitudinal axis of implant 100. Third surface projections 470 can be interspersed with surface projections 422 and/or second surface projections 460. Surface projections 422 may have a length approximating the combined length of second surface projections 460 and third surface projections 470.--

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REMARKS

Applicant amended the specification to provide antecedent basis for claims 60, 155-158, and 184-186. The amendment to the specification is supported by the language in claims 60, 155-158, and 184-186, respectively, as originally filed; and by Fig. 19A. No new matter has been added.

In the Office Action, the Examiner objected to Applicant's Amendment dated May 9, 2002 as being not fully responsive on the grounds that "many of Applicant's claims are believed not directed to the elected species" and cited claims 104, 58, 60, and 61 as examples of claims not directed to the elected species or inconsistent with one another. In order to facilitate prosecution of this application, Applicant withdraws claims 58, 61, 71, 104, 158, 173, 174, 184, 204, 207, 217, and 229 from the listing

claims previously submitted to read on elected Species 4. Applicant submits that the following claims read on Species 4: 57, 59, 60, 62-70, 72-103, 105-108, 114-120, and 146-157, 159-172, 175-183, 185-200, 203, 205, 206, 208-216, 218-228, and 229-243. Upon allowance of the independent claims, Applicant requests that any withdrawn, claims dependent from allowed an independent claim or claims dependent therefrom, are added back to the application and indicated allowable.

The Specification discloses that many of Applicant's dependent claims are directed to features applicable to all the embodiments and species of the present invention. For example for claims 75 and 221, of the specification states that "for all the various embodiments" the grooves may have a variety of configurations such as "square-shaped or U-shaped." (Application page 11, lines 8-12). For claims 78, 82, 171, 199, and 222, the specification states that the surface configuration is "applicable to any interbody spinal fusion implants, including but not limited to, an artificial disc or motion preserving device having opposed surfaces incorporating the present inventive teachings for engaging each of the adjacent vertebral bodies." (Application page 20, lines 17-21). Applicant respectfully submits that the claims listed in the preceding paragraph are correctly directed to elected Species 4.

Applicant respectfully submits that drawings are not required for all subject matter claimed. 35 U.S.C. § 113 (first sentence) states that "the applicant shall furnish a drawing *where necessary for the understanding of the subject matter to be patented.*" (emphasis added). While some of the claimed subject matter is not illustrated in Figs. 16-19A, Species 4 (e.g., a cap as recited in claim 104, or the rearward portion of the first plurality of bone engaging structures being perpendicular to at least one of the upper and lower surfaces of the implant as recited in claim 58), Applicant submits that

further illustrations are not necessary for an understanding of the subject matter sought to be patented.

Many of the elected claims include a recitation of a material or composition, or a combination of a material or composition (see, for example, claims 85-99). MPEP § 601.01(f) states that “[...situations in which drawings are usually not considered necessary for the understanding of the invention under 35 U.S.C. 113 (first sentence) are: (A) Coated articles or products...[and] (B) Articles made from a particular material or composition...” (MPEP, page 600-14, column 2 (August 2001)).

Applicant notes that the restriction requirement dated October 9, 2001 does not identify any linking claims as is required by MPEP § 809.03. (See, MPEP § 809.03, page 800-52, col. 1 (August 2001)). Applicant submits that elected independent claims 57 and 175 are linking claims to Species 4-6 identified by the Examiner, and that elected independent claim 146 is a linking claim to Species 4 and 5 identified by the Examiner. MPEP § 818.03(d) states that “[i]f the Office allows such a claim [i.e., a linking claim], it is bound to withdraw the requirement and to act on all linked inventions.” (See, MPEP § 818.03(d)). Further, MPEP § 809.04 states that “[i]f a linking claim is allowed, the examiner must thereafter examine species if the linking claim is generic thereto, or he or she must examine the claims to the non-elected inventions that are linked to the elected invention by such allowed linking claim.” (See, MPEP § 809.04, page 800-52, col. 2 (August 2001)).

Accordingly, Applicant submits that upon allowance of linking claim 57, dependent claims 71 (directed to Species 6); and 109-113 (directed to Species 5) must be examined under 37 C.F.R. § 1.104 for patentability. Upon allowance of linking claim 146, dependent claims 173 and 174 (directed to Species 5) must be examined under

37 C.F.R. § 1.104 for patentability. Upon allowance of linking claim 175, dependent claims 201 and 202 (directed to Species 5); and 217 (directed to Species 6) must be examined under 37 C.F.R. § 1.104 for patentability.

The Examiner also objected to Applicant's Amendment for not pointing out the novelty of new claims 203-243. As to claims 203-237, independent claim 203 recites that a first plurality of bone engaging structures have side facets that have "at least a first portion in a plane passing through the longitudinal axis of said implant at an angle to the longitudinal axis." Independent claim 203 also recites at least one of a second plurality of bone engaging structures having "at least a left forward side facet and a right forward side facet directed at least in part toward said leading end and said sides, respectively, and a single rearward facet directed at least in part toward said trailing end;" and at least one of a third plurality of bone engaging structures having "at least a left rearward side facet and a right rearward side facet directed at least in part toward said trailing end and said sides, respectively, and a single forward facet directed at least in part toward said leading end." The side facets of Paul '125 do not have a portion in a plane passing through the longitudinal axis of the implant at an angle to the longitudinal axis. Paul '125 also does not teach an implant having different three types of bone engaging structures as claimed in Applicant's claimed invention. Applicant submits that independent claim 203 is patentable and that dependent claims 204-237 dependent from independent claim 203, or claims dependent therefrom are patentable at least due to their dependency from an allowable independent claim.

As to dependent claims 238-243, Applicant submits that independent claims 57, 146, and 175 are patentable as set forth in the remarks of Applicant's reply of May 9, 2002, incorporated herein by reference. Dependent claims 238-243 depend from

independent claims 57, 146, and 175, or claims dependent therefrom, respectively, and are patentable at least due to their dependency from an allowable independent claim.

The Examiner also objected to Applicant's Amendment for not indicating support in the original disclosure for the new claims. Support for independent claim 203 is found in claims 57, 146, and 175 as originally filed; page 14, line 12 to page 16, line 17 of the specification; and Figs. 16-19A. Support for dependent claims 204-206 may be found in claims 58-60 as originally filed, respectively. Support for dependent claims 208-222 may be found in claims 62-75 and 78 as originally filed, respectively. Support for dependent claims 223-228 may be found in claims 83, 84, 102, 103, 118, and 119 as originally filed, respectively. Support for dependent claims 229-233 may be found in claims 184-188 as originally filed, respectively. Support for dependent claims 234 and 235 may be found on page 19, lines 8-12 of the specification. Support for dependent claims 236, 238, 240, and 242 may be found on page 4, line 14 of the specification. Support for dependent claims 237, 239, 241, and 243 may be found on page 19, lines 12-14 of the specification.

Applicant submits that the response submitted May 9, 2002 and the supplemental amendment and remarks above are fully responsive to the Office Actions dated January 9, 2002 and July 17, 2002. Applicant submits that independent claims 57, 146, 175, and 203 are patentable and that dependent claims 58-130, 147-174, 176-202, and 204-243 dependent from independent claims 57, 146, 175, and 203, or claims dependent therefrom, respectively, are patentable at least due to their dependency from an allowable independent claim.

In view of the foregoing amendments and remarks, Applicant respectfully requests the reconsideration and reexamination of this application and the timely

allowance of the pending claims.

To the extent any extension of time under 37 C.F.R. § 1.136 is required to obtain entry of this reply, such extension is hereby respectfully requested. If there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our Deposit Account No. 50-1066.

Respectfully submitted,

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CHANGES TO THE SPECIFICATION

The paragraph bridging pages 14 and 15:

-- As shown in Figs. 16-19B, a fourth embodiment of the surface configuration of the present invention is generally referred to by the numeral 420. Surface configuration 420 includes surface projections 422 configured to facilitate insertion of implant 100 in the direction of insertion into an implantation site while resisting expulsion of implant 100 in a direction opposite to the direction of insertion. Each of surface projections 422 has an angled forward facet 424 directed toward leading end 402 of implant 100 and a rearward portion 426 directed toward trailing end 404 of implant 100. Forward facet 424 has a length greater than the length of rearward portion 426. Rearward portion 426 has a slope that is steeper than the slope of forward facet 424. In this embodiment, the base of rearward portion 426 forms an angle of approximately 90 degrees or less with respect to upper and/or lower surfaces 406, 408 of implant 100. Rearward portion 426 can be a portion of surface projection 422, such as a facet, an edge, or a line for example. Each one of surface projections 422 has a left side forward facet 450, a right side forward facet 452, a left side rearward facet 454, and a right side rearward facet 456 directed toward the front and sides, and directed toward the rear and sides of implant 100, respectively, and forward facet 424 and rearward portion 426.--

The first full paragraph on page 15:

--Surface configuration 420 can further include a second plurality of surface projections 460 having at least a left forward side facet 462 and a right forward side facet 464 directed at least in part toward leading end 402 and sides of implant 100, respectively, and at least one rearward facet 466 directed at least in part toward trailing

end 400. In this embodiment, rearward facet 466 is approximately perpendicular to at least one of upper and lower surfaces 406, 408 of implant 100. Rearward facet 466 may also be at an angle that is greater than or less than 90 degrees to at least one of upper and lower surfaces 406, 408 of implant 100. Left and right forward side facets 462, 464 have at least a first portion in a plane at an angle to the longitudinal axis of implant 100. Second surface projections 460 can be interspersed with surface projections 422.--

The second full paragraph on page 15:

--Surface configuration 420 can further comprise a third plurality of surface projections 470 having at least a left rearward side facet 472 and a right rearward side facet 474 directed at least in part toward trailing end 404 and sides of implant 100, respectively, and at least one forward facet 476 directed at least in part toward leading end 402. In this embodiment, forward facet 476 is at an angle that is less than 90 degrees to at least one of upper and lower surfaces 406, 408 of implant 100. Forward facet 476 may also be approximately perpendicular to at least one of upper and lower surfaces 406, 408 of implant 100. Left and right rearward side facets 472, 474 have at least a first portion in a plane at an angle to the longitudinal axis of implant 100. Third surface projections 470 can be interspersed with surface projections 422 and/or second surface projections 460. Surface projections 422 may have a length approximating the combined length of second surface projections 460 and third surface projections 470.--